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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/713,247	11/16/2000	Takayuki Toshima	199764US3	3215

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EXAMINER

LUND, JEFFRIE ROBERT

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 10/28/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

Applicant(s)

09/713,247

TOSHIMA ET AL.

Examiner

Art Unit

Jeffrie R. Lund

1763

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 August 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 12-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 November 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: DRAWING CORRECTIONS.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I claims 1-11 in Paper No. 5 received August 29, 2002 is acknowledged. The traversal is on the ground(s) that there is no serious burden because of electronic searching. This is not found persuasive because although electronic searching does allow searching of large numbers of patents, the more references searched, the more time required to make the search, which is a serious burden. Furthermore, apparatus and method claims require different considerations. For example, a limit that makes a method allowable may only be an intended use of the apparatus, or case law that is appropriate to a method claim is not appropriate for an apparatus and vice versa.

The requirement is still deemed proper and is therefore made FINAL.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: BUCR and BR (figures 5 and 6). A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to because the axis displayed in figures 5 and 6 are incorrect. The x-axis is along the front of the apparatus i.e. along the line defined by the edge of 65 (see page 15 of the specification). The y-axis is defined along the edge of

Art Unit: 1763

the apparatus that includes the stacks G1, G2 (figures 6 and 7) or G3, G4 (figure 5).

(Also see enclosed drawings with corrections in red.) A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure is objected to because of the following informalities: the examiner notes that the specification is not in idiomatic English, and as a result, is full of minor errors. Appropriate correction is required.

5. A substitute specification in proper idiomatic English and in compliance with 37 CFR 1.52(a) and (b) is required. The substitute specification filed must be accompanied by a statement that it contains no new matter.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Art Unit: 1763

7. Claims 1-4 and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Sakai, US Patent 6,409,838 B1.

Sakai teaches an apparatus that includes: a chamber 21a, a heating plate 51 for heating a substrate W, a bubbler 27 for supplying a vapor into the chamber via a ring 58 surrounding the substrate to treat the upper surface of the substrate, and lift pins 56 for holding the substrate. The gas flows horizontally to the substrate, and the lift pins are adjustable to an infinite number of positions between the loading position and the hot plate. (Figures 5 and 7, and column 6 lines 13-65) The specific type of vapor supplied to the apparatus is an intended use of the apparatus. The apparatus is inherently capable of supplying the desired vapor.

8. Claims 1-4 and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Harada et al, US Patent 6,402,844 B1.

Harada teaches an apparatus that includes: a chamber 151, a heating plate 160 for heating a substrate W, a bubbler 182 for supplying a vapor into the chamber via a ring 176 surrounding the substrate to treat the upper surface of the substrate, and lift pins 158 for holding the substrate. The gas flows horizontally to the substrate, and the lift pins are adjustable to an infinite number of positions between the loading position and the hot plate. (Figure 10, and column 8 line 7 through column 9 line 45) The specific type of vapor supplied to the apparatus is an intended use of the apparatus. The apparatus is inherently capable of supplying the desired vapor.

Art Unit: 1763

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai in view of Maeda et al, 5,620,523.

Sakai was discussed above.

Sakai differs from the present invention in that Sakai does not teach that the ring has a plurality of supply holes on an inner circumferential surface of a ring member.

Maeda et al teaches a gas supply ring 9a with a plurality of supply holes 22 on an inner circumferential surface. (Figures 6A, 6B, 7A, 7B, 8A, 8B, 9A, 9B)

The motivation for replacing the open gas supply ring of Sakai with the gas supply ring having an inner circumferential surface with a plurality of holes is to provide a gas supply ring that provides a better distribution of gas across the substrate to improve the uniformity of the coating deposited on the substrate.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the gas ring of Sakai with the gas ring of Maeda et al.

11. Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai in view of Kwag et al, 6,402,849 B2.

Sakai was discussed above.

Art Unit: 1763

Sakai differs from the present invention in that Sakai does not teach that the ring has a plurality of supply holes arranged in a vertical direction on an inner circumferential surface of a ring member in which the diameter of the upper holes are larger than the lower holes, and half the holes are gas supply holes and the other half, opposite the first have are exhaust holes.

Kwag et al teaches a gas supply ring with a plurality of supply holes 150 disposed in a vertical direction on an inner circumferential surface, the supply holes 150 are arranged in half the ring, and exhaust holes 180 are arranged in half the ring opposite the inlet half of the ring. (Entire document)

The motivation for replacing the open gas supply ring of Sakai with the gas supply ring having an inner circumferential surface with a plurality of holes arranged in a vertical direction on an inner circumferential surface of a ring member, and half the holes are gas supply holes and the other half, opposite the first half have are exhaust holes is to provide a gas supply ring that provides a better distribution of gas across the substrate and improves the flow pattern in the chamber (i.e. laterally across the wafer), both of which improve the uniformity of the coating deposited on the substrate.

The motivation for selecting a specific size of holes is to optimize the flow pattern in the processing chamber.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the gas ring of Sakai with the gas ring of Kwag et al, and it would be *prima facie obvious* to one of ordinary skill in the art at the time the

Art Unit: 1763

invention was made to optimize the size of the holes to optimize the flow of the gas in the chamber.

12. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai in view of van de Ven et al, 5,620,525.

Sakai was discussed above and includes a supplying mechanism that is structured to supply an inert gas to the treatment surface of the substrate (figure 10).

Sakai differs from the present invention in that Sakai does not teach supplying an inert gas to a non-treatment surface of the substrate via holes for the lift pins.

Van de Ven et al teaches supplying an inert gas to the backside (non-treatment) surface of the substrate via holes for the lift pins to prevent deposition on the non-treatment surface of the substrate. (Figure 6, column 7 lines 31-67, specifically lines 64-67)

The motivation for supplying an inert gas to the non-treatment surface of the substrate via the lift pin holes of Sakai as taught by van de Ven et al is to prevent deposition of materials on or contact of processing gases with the non-treatment surface of the substrate.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to supply an inert gas to the non-treatment surface of Sakai as taught by van de Ven et al.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited art teaches the technological background of the

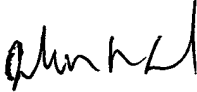
Art Unit: 1763

invention. The cited art contains patents that could be used to reject the claims under 35 USC § 103. These rejections have not been made because they do not provide any additional or different teachings, and if they were applied, would have resulted in an undue multiplication or references. (See MPEP 707.07(g))

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrie R. Lund whose telephone number is (703) 308-1796. The examiner can normally be reached on Monday-Thursday (6:30 am-6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on (703) 308-1633. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


Jeffrie R. Lund
Primary Examiner
Art Unit 1763

JRL
October 25, 2002